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**United States Patent**

[19]

**van Ketwich**[11] **Patent Number:** **6,072,475**[45] **Date of Patent:** **Jun. 6, 2000**[54] **TOUCH SCREEN**[75] Inventor: **Johan Richard van Ketwich**, Malmö,  
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Stockholm, Sweden[21] Appl. No.: **08/916,400**[22] Filed: **Aug. 22, 1997**[30] **Foreign Application Priority Data**

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[51] **Int. Cl.**<sup>7</sup> ..... **G09G 5/00**[52] **U.S. Cl.** ..... **345/173; 345/156**[58] **Field of Search** ..... **345/173, 174,  
345/179; 178/18.01, 18.03, 18.05, 18.06,  
18.07; 245/156, 157, 179**[56] **References Cited**

## U.S. PATENT DOCUMENTS

4,066,852	1/1978	Zenk	200/54
4,066,853	1/1978	Zenk	200/54
4,066,854	1/1978	Zenk et al.	200/54
4,066,855	1/1978	Zenk	200/54
4,085,302	4/1978	Zenk et al.	200/54
4,127,752	11/1978	Lowthrop	200/54
4,320,573	3/1982	Larson	29/622
4,394,643	7/1983	Williams	340/365
4,550,221	10/1985	Mabusth	178/18
4,566,001	1/1986	Moore et al.	340/711

4,598,181	7/1986	Selby	200/5 A
4,791,252	12/1988	Mayer	200/52 R
4,825,212	4/1989	Adler et al.	340/706
4,977,397	12/1990	Kuo et al.	340/710
5,376,946	12/1994	Mikan	345/157
5,402,151	3/1995	Duwaer	345/173
5,584,054	12/1996	Tyneski et al.	455/89
5,598,527	1/1997	Debrus et al.	345/173
5,748,185	5/1998	Stephan et al.	345/173

## FOREIGN PATENT DOCUMENTS

51-60702	6/1993	Japan	.
8-212005	8/1996	Japan	.

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[57] **ABSTRACT**

A touch screen 1111 having an active surface area 1112 which extends in three physical dimensions (x-, y- and z-dimensions) is provided. In the figure the active surface area has an U-shaped form. When a user slides his finger over the active surface area the tactile feedback gives him information about the position of the finger. The touch screen is activated when the active surface area senses a certain pressure from the finger. The use of the touch screen is facilitated especially when the user is on the move or when the touch screen is out of sight. Such use is common when operating hand-held terminals.

**18 Claims, 9 Drawing Sheets**